

# BETTING ON HITLER – THE VALUE OF POLITICAL CONNECTIONS IN NAZI GERMANY\*

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## **Abstract:**

This paper examines the incentives of private sector firms to undermine stable institutions and democracy in one of history's most celebrated cases – the Nazi seizure of power. We offer new evidence on the size and value of connections between German industry and Hitler's movement, drawing on previously unused contemporary data sources about supervisory board composition and stock returns on the Berlin Bourse. One out of seven firms, and a large proportion of the biggest companies, had substantive links with the NSDAP. Crucially, our results show that helping to undermine democracy at important junctures produced high returns. While the market as a whole rose after Hitler's accession to power, connected firms outperformed by 5 to 8 percent between January and March 1933.

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## I. Introduction

The Nazi party's rise to power in 1933 was one of the key turning points of 20<sup>th</sup> century history. Within months of taking over as Reich Chancellor of the Weimar Republic, Hitler had crushed democracy in Germany. With the Nazis now the sole legal political party and trade unions suppressed, the new regime set Europe's most populous country on a course that led to World War II and the Holocaust, with millions of casualties. What role did big business play in this catastrophe? Did business leaders undermine the stability of Germany's first republic to further their own interests? We argue that links between the Nazi party and big business were much more widespread and important than recent scholarship has recognized. Crucially, given the reaction of stock market investors, large business firms stood to benefit substantially from supporting the NSDAP and contributing to the fall of the Weimar Republic. In line with the results from recent cross-country studies, our findings suggest that undermining institutional stability may sometimes be in the best interest of businesses because centralized, dictatorial systems with higher levels of corruption raise the value of political connections.

Early scholarship after 1945 devoted considerable attention to NSDAP fundraising prior to its 'seizure of power'. Following the conviction of influential industrialists such as Friedrich Karl Flick, Alfred Krupp, and I.G. Farben executives in the Nuremberg trials, much of the literature took it for granted that major German firms had financed the Nazi party's rapid rise after 1930. Autobiographies of leading figures such as Fritz Thyssen's *I Paid Hitler* [1941] reinforced this impression.<sup>1</sup>

From the late 1960s onwards, this consensus was challenged by Henry A. Turner. His *German Big Business and the Rise of Hitler* argued that before 1933, contributions

from large corporations were rare. Only a handful of prominent business leaders had made substantial donations. The party was largely self-financing. Political contributions, when they were given, were a way to hedge bets -- many right-wing parties received funding.<sup>2</sup> In other words, there was no “smoking gun” linking big business with the rise of Hitler. While some authors have questioned Turner’s reading of the evidence, the consensus now is that the links between big business and the Nazis were much more tenuous and ambiguous than had previously been assumed.<sup>3</sup> Since many documents were destroyed during the war and by firms themselves in 1945, it seems likely that the limited links documented by Turner are a lower bound on the true extent of support for the party.

This paper offers new evidence on the size and value of connections between German industry and the Nazi party. We draw on hitherto unused contemporary data sources to document ties between big business and the Nazis. We consider not only members of firm management boards (the *Vorstand*) but also their supervisory boards (*Aufsichtsrat*). Our data reveals that many more large firms had ties with the NSDAP than suggested by revisionists – to the extent that weighted by capitalization in 1932, more than half of listed firms on the Berlin stock exchange enjoyed links to the Nazis.

Second, we examine the reactions of investors. If close political ties with the new regime – as perceived by German stock market investors in 1933 – were valuable to the firms in question, their share prices should have outperformed the rest of the market. We thus try to offer a quantitative answer to the question: how much was it worth to have close, early connections with the Nazi party? The answer is – a great deal. Affiliated firms outperformed the stock market by 5 to 8 percent, and account for a large part of the market’s rise. Investors recognized value where they saw it, and rewarded firms with pre-

established ties handsomely. This demonstrates that the connections we document were mattered – investors’ willingness to pay for connected firms was markedly higher by mid-March 1933 than before the 30<sup>th</sup> of January.

Our findings relate to two more specialized literatures as well. Recent work on Indonesia and Malaysia has analysed the value of political connections in developing countries, using event-study methods in the context of the East Asian financial crisis. Because it was unexpected, the crisis offered a natural experiment to test the value of patronage by Suharto in Indonesia [Fisman 2001] and by Mahathir or Anwar in Malaysia [Johnson and Mitton 2003]. Since then the literature has evolved quickly. While many of the earlier studies focused on case studies, recent work has emphasized cross-country comparisons [Faccio 2006; Faccio, Masulis, and McConnell 2005]. Faccio (2006) shows that political connections around the globe are more valuable in corrupt countries with barriers to foreign investment and weaker institutions.

In the study by Fisman, affiliations were largely pre-determined by family ties. Faccio emphasized ties that arise when businessmen enter politics. The type of connections we document are different because they are formed deliberately, and not by genetic roulette. They are also not the result of businessmen entering politics. In some ways, they are more similar to campaign contributions in established democracies. A recent literature has analysed contributions to parties and political campaigns, arguing that these are similar to investment opportunities. Scholars have documented that politicians in key positions like committee chairs in the US Congress receive greater contributions [Ansolabehere and Snyder 1999; Grier and Munger 1991]. Also, the contributions of political action committees run by firms and industry associations are

tied to the likelihood of a politician succeeding in his bid for office, while individual contributions may not be [Snyder 1990]. Despite the evidence that money talks in politics, controversy continues about the process of “price formation.” In some political systems, donations by firms and chief executives may fail to reach permissible limits. Returns on contributions often appear to be exorbitant: Some analysts, following Tullock [1972], suggest that because switching a single vote with limited contributions may generate windfalls worth millions, even more money should find its way into politics than appears to be the case.<sup>4</sup> If the value of political connections is higher in more corrupt countries with centralized power structures, then establishing closer ties with the Hitler party and its centralizing agenda should have been particularly attractive to German businesses. Our results confirm this and imply that value-enhancing choices of business contributors may, under certain circumstances, undermine institutional stability itself.

The rest of the paper is structured as follows. Section II offers a brief summary of the NSDAP’s rise to power, and argues that a look at the cross-sectional evidence is necessary to shed further light on the stock exchange’s reaction to the rise of the Nazi party. Section III describes our data on stock prices and defines connected firms for the purposes of our analysis. We present our main results in Section IV and discuss interpretations of our findings. The next section looks at issues of robustness. We then consider how associations were formed and potential endogeneity problems. The conclusion discusses the paper’s main implications.

## II. Hitler’s Rise to Power

In November 1923, the National Socialist German Workers Party (NSDAP) staged an unsuccessful putsch in Munich. Key figures, including Adolf Hitler himself,

were imprisoned. Thereafter, the party pursued a strategy of legitimacy, attempting to gain power through the electoral process. For most of the 1920s, its chances of doing so seemed slim. While membership exceeded 100,000 by 1928, the party polled a disappointing 2.6 percent of all votes in the May elections to the Reichstag in the same year (Table 1). In the spring of 1930, however, the last Social Democratic–led coalition with a parliamentary majority fell apart over the Reich’s budget deficit and increased unemployment contributions. Afterwards, minority governments usually had to use the President’s special powers to push through legislation.

As the economic crisis deepened after 1929, the NSDAP gained its first major success in the national elections of 1930, polling 18 percent of votes cast – thus gaining the second-largest number of seats in parliament. The party’s membership soared, reaching 800,000 by 1931. In the spring of 1932, the Brüning government fell. President Hindenburg appointed another minority cabinet, headed by Franz von Papen. In the summer election of 1932, the Nazi party received 37 percent of all votes, winning the largest number of delegates in the Reichstag. Because Hitler insisted on becoming chancellor, the NSDAP did not enter into government. Elections in November, 1932, brought the first major setback for the Nazis, as their vote slipped and they lost 34 seats, while the Communist vote surged. After von Papen stepped down as Chancellor, Hindenburg briefly appointed General von Schleicher in his place. At the end of 1932, some newspaper editorials wrote off the Nazi party as one whose influence had peaked, predicting it would never enter into government.<sup>5</sup> Yet von Schleicher was unable to widen his political support and had to resign. On the promise to establish a broad

coalition of the right, President Hindenburg finally appointed Hitler as head of government on January 30, 1933.

Apart from Hitler himself, the new cabinet contained only two Nazi ministers. Hermann Göring also held the crucial post of Prussian Minister of the Interior, which gave the NSDAP control over the biggest German state's police. The German National People's Party (DNVP), some technocrats, and other independent figures of the right filled key positions. Within days of taking office, the new government announced new parliamentary elections for early March. Using the pretext of the Reichstag fire, a brutal crackdown on the Communist party was carried out before the end of February, and the KPD's members of parliament were arrested or murdered. With the police either looking the other way or actively joining them, the SA, SS, and other rightist paramilitary organizations such as the Stahlhelm unleashed a wave of assaults on political opponents of all stripes, including Communists, Social Democrats, trade unionists, and Jews. By March, freedom of assembly, speech, and the press had vanished.

The March elections gave the NSDAP 44 percent of the vote. With its "National" coalition partners, the government now commanded an absolute majority. The enabling law, passed with the votes of all parties except the Social Democrats, changed the constitution and allowed laws to be passed without parliamentary approval. With legal constraints largely out of the way, the regime turned to its arch-enemies – the Jews and the unions. A nationally orchestrated boycott of Jewish stores began in April, and Jews, Social Democrats, and even rightist members of the civil service were purged.<sup>6</sup> The unions were dissolved in early May, and numerous members jailed. By the summer of 1933, all parties except the NSDAP had been dissolved.

Traditionally, examinations of the link between stock prices and the Nazis' rise to power have focused on market averages. Immediately after the new coalition led by Hitler took office, stocks rallied. As the *New York Times*' correspondent put it on January 31: "The Boerse recovered today from its weakness when it learned of Adolf Hitler's appointment, an outright boom extending over the greater part of stocks... The turnover was large, leading stocks advancing 3 to 5 percent".<sup>7</sup> Stock prices continued to rise after January 1933.<sup>8</sup> Some observers argued that investor enthusiasm for Nazi economic policies and rearmament was responsible for this increase.

The consensus view has been that this evidence is not convincing, for two reasons. First, the rebound in stock prices began long before there Hitler's accession to office became a serious political possibility. Second, it is also virtually indistinguishable from the cyclical increase in broad market indices that started in most industrialized countries in the summer of 1932. Figure 1 plots stock indices in France, the United Kingdom, Germany, and the United States. The German stock market fell by 40 percent between January 1930 and April 1932. By mid-January 1933, immediately before the *Machtergreifung*, it had risen by 43 percent. This was part of a general trend – the S&P-500 in the US had gained 35 percent over the same period. Nor were the increases after the 30<sup>th</sup> of January 1933 unusually high. By June, the German index had risen by 12 percent since mid-January. The S&P was up 63 percent, the UK FTSE 11 percent, and the French index by 10 percent. As Figure 1 shows, there is little to suggest that stock market investors as a whole cheered the Nazis' rise to power to a significant extent, at least during its initial phase. What has been neglected is the impact of Hitler's accession to power on the cross-section of stock returns.



### III. Data

#### *A. Stock prices, dividends, and market value*

Stock price information on individual shares is from the official price lists (*Monats-Kursblatt*) published by the Berlin stock exchange. Germany had (and still has) a highly fragmented stock exchange system, with local bourses competing for listings. The Berlin Bourse became by far the most important by the late 19<sup>th</sup> century, and continued to dominate until 1945.<sup>9</sup> Some potentially interesting firms, including several from the Ruhr industrial district are, therefore, not included in our study. We begin in April 1932, when the stock exchanges reopened after the banking crisis in the summer/autumn of 1931. There are 789 individual firms with quotations at some point during the period April 1932 to May 1933 (Table 2). Many observations are missing – trading, especially in the smaller stocks, was often illiquid, and some stocks were delisted. We collected price information for the 10<sup>th</sup> of each month, or the nearest subsequent trading day. If no price was recorded for an individual firm on that day, we did not include the observation. The *Kursblatt* also gives information on dividend payments by financial year (which normally ran from April to March).

The 1932 edition of the *Handbuch der deutschen Aktiengesellschaften* contains information on capital structure (number and type of shares outstanding).<sup>10</sup> Market capitalization was calculated as the total number of ordinary share equivalents times the share price in December 1932 (thus giving a greater weight to preference shares if they carried a higher par value).

### *B. Definition of connected firms*

We identify businessmen and firms as “connected” to the NSDAP if they met either of two criteria. First, if business leaders or firms contributed to the party or to Hitler or Göring, they qualify as “connected” – as long as historians agree.<sup>11</sup> If the contributions are disputed, we drop the individual, no matter how weak the objection may be. Second, certain businessmen provided political support for the Nazis at crucial moments, serving on (or helping to finance) various groups that advised the party or Hitler on economic policy. We also count the latter as “connected.”

The first group includes early contributors such as Thyssen and Kirdorf, whose financial support – if not their “importance” – is not in dispute. It also includes the financiers and industrialists who participated in the famous meeting of February 20<sup>th</sup>, 1933, at Göring’s residence in Berlin. After giving a fiery speech in which he railed against the evils of Communism and declared private enterprise to be incompatible with democracy, Hitler left the conclave. Göring laid out the plans for winning the upcoming national elections, which, he indicated, would be the “last for the next five years, probably even for the next hundred years.” Schacht then presided over the establishment of a campaign fund totaling three million Reichsmarks for the electoral campaign.<sup>12</sup>

In the second group are several groups of businessmen whose ties to the party also predated Feb. 20. One includes the signatories of a famous petition to Reich President Hindenburg, urging him to ‘entrust[...] the leader of the largest national group with the responsible leadership of a Presidential Cabinet’ – i.e., to appoint Hitler as Chancellor.<sup>13</sup> The signatories were providing political support to the Nazis at a critical juncture, since

the party's vote had just declined.<sup>14</sup> They qualify as “connected” according to our second criterion.<sup>15</sup>

We also include the members of the *Keppler Kreis* and the *Arbeitsstelle Schacht* in this group. The former was organized by Wilhelm Keppler, a former chemical company executive, with the explicit aim of creating stronger links between big business and the National Socialist Party, and of influencing the latter's economic policies. The *Arbeitsstelle Schacht* was organized by the former Reichsbank President Hjalmar Schacht. The businessmen who financed Schacht's circle included some of the biggest names in German business, including Albert Vögler of Vereinigte Stahl, Krupp von Bohlen, Fritz Springorum, Emil Georg von Stauss (who first introduced Schacht to Göring), Rosterg of Winterhall, and Kurt von Schröder.<sup>16</sup> Because of Henry Turner's objections, we have excluded Paul Reusch and Krupp from our calculations below, though both their firms made substantial contributions to the Feb. 20 fund. In the same spirit, we also exclude Paul Silverberg.<sup>17</sup>

Traditional accounts of big business involvement with the Nazi party have focused on the relationship between General Directors or other members of the executive board (*Vorstand*) and party figures.<sup>18</sup> We pursue a more comprehensive approach here. The role of the supervisory board (*Aufsichtsrat*) in the organization of German industry is hard to overestimate. The *Aufsichtsrat* has the power to appoint and fire executives, acting on behalf of the shareholder assembly [Passow 1906]. Part of its remit is to check on the financial reporting of joint-stock companies, and consultation with its principal members before major decisions is common. In contrast to Anglo-Saxon boards, executives from the *Vorstand* are ordinarily not members of the supervisory board. Far

from being an ineffectual rubber-stamping institution, supervisory boards offered central positions of power, and many of the leading businessmen in Germany did (and still do) accept multiple appointments. Universal banks exerted their influence habitually through seats on the board – Gerschenkron called the supervisory board in Germany the “most powerful organ... within corporate organizations”.<sup>19</sup>

We traced the *Aufsichtsratsmandate* (positions on supervisory boards) of contributors such as Thyssen and Kirdorf plus the names derived from the Hindenburg Petition, the *Keppler Kreis* and the *Arbeitsstelle Schacht*. Taken together these individuals define a group of Nazi “original supporters” with credible personal ties to new leadership.<sup>20</sup> We checked each of these against the list of supervisory board members published in the 1932 edition of the *Handbuch der deutschen Aktiengesellschaften*. The *Handbuch* gives information on members and their functions (chair, vice-chair, or ordinary member of the board). We count all of them as of equal importance.<sup>21</sup>

In total, we have 106 connected firms in our sample, but not all of these have recorded share prices and/or market capitalizations (we have market capitalizations for 83 of them). They differ from unconnected firms in a number of important ways. First, they were markedly larger – their average market capitalization of 72 million RM was ten times higher than that of unconnected firms. This appears to be in line with contemporary comments that mainly saw very large businesses as having an interest in influencing politics, perhaps because a larger proportion of any possible gain would accrue to them. Weighted by market capitalization, more than half of the firms listed on the Berlin stock market had Nazi-connected members on the board who organizationally supported the

NSDAP at one stage or another, or offered financial help. This factor alone suggests that connections between the party and big business were closer than some of the recent literature has accepted. In terms of dividend yield, the two groups are relatively similar – connected firms pay a slightly higher rate of 3.8%, vs. 3% for unconnected firms. In both groups, a large number of firms are not making any payments to shareholders during the final years of the Great Depression. Prior to Hitler’s rise to power, both groups showed almost identical log returns, driven by a cyclical recovery – a rise by 0.12 during the two months period from November 1932 to January 1933 for connected firms, and 0.11 for unconnected ones. During the two months after January 1933, however, the connected firms show markedly higher returns – a difference of 0.06 in mean returns. The next section explores the extent to which we can document a systematic relationship between above-average stock returns and affiliation with the Nazi party.

#### IV. Results

In this section, we estimate the value of a Nazi affiliation for listed firms. We evaluate the effect on the cross-section of returns between January and March 1933, compare it to the returns in 1932, and perform a number of robustness checks.

##### *A. Main findings*

For our technique to pick up the benefits of having Nazi-affiliations, we need to use a starting date before the NSDAP’s entry into government was public knowledge (or a foregone conclusion for most astute observers). Accounts of the negotiations emphasize that the outcome was in doubt literally to the last hours before Hitler and the other members of the new government presented themselves to Hindenburg on the morning of

the 30<sup>th</sup> of January [Turner 1996; Schwerin von Krosigk 1974 and 1977]. It is also commonly agreed that the results of the election in Lippe-Detmold on January 15, 1933, which were touted as a sign of revived Nazi strength, affected the bargaining. We thus settled on the 10<sup>th</sup> of January as a safe last date when stock prices were undisturbed.<sup>22</sup> Given the volatile politics of Germany at the time and the uncertainty surrounding President Hindenburg's intentions (whose intense personal dislike of Hitler was widely known), this should ensure that only very few market participants could have correctly anticipated the composition of the next government.<sup>23</sup>

The rising tide of Germany's recovering economy lifted all boats, and investors may have cheered the appearance of a more broadly-based government (Figure 1). In addition, firms that supported the Nazis financially or had business leaders with strong links to the NSDAP on their boards, exhibited share-price increases that were almost 1.5 times the general rise in the market. Figure 2 shows the distributions. The modal return on Nazi-affiliated firms was about 10 log points higher than for unconnected firms.

Connected firms did not do better before the *Machtergreifung*. The same is not true after it, when Nazi-affiliated firms have much higher chances of outperforming. While unaffiliated firms had a 70:30 chance of outperforming the market, the odds for connected firms were 48:52. This is not simply a result of other observable characteristics, such as market capitalization. Table 3 shows the impact of being affiliated with the NSDAP, for two two-month periods – November 32 to January 33, and January 33 to March 33, controlling for other characteristics. For the period prior to Hitler's accession to power, the naïve regression of returns on our Nazi dummy does not suggest benefits for connected firms. This finding is robust to including the dividend yield and

the log of market capitalization as control variables. There is also no significant effect from being Jewish-owned. In the final specification (eq. 5), we winsorize the dependent variable to reduce the effect of outliers.<sup>24</sup> Results are unaffected, and in line with what the history of the period would lead us to expect. The November elections went badly for the Nazi party, and caused an internal crisis. Also, the appointment of General von Schleicher seemed to rule out any entry into government in the near future.

The lower panel of Table 3 documents significant outperformance over the period from mid-January to mid-March. Nazi-affiliated firms saw their prices increase by 6.5 percent more than the rest.<sup>25</sup> Controlling for additional characteristics strengthens the result. Firms with large market capitalizations were more likely to be Nazi-affiliated, but size alone did not aid in the recovery of stock prices. Regression (7) shows that firms with higher market capitalizations performed in line with the market. High dividend yields were rewarded during the period, but not significantly so. Somewhat surprisingly, Jewish-owned firms as a whole do not consistently underperform the market – though the sign on the coefficient is negative, the result falls short of statistical significance. This may simply reflect measurement error. Though we made strenuous efforts to pin down ownership, it is likely that some errors remain. In addition, other factors may be at work. Some analysts have suggested that in 1933, Nazi agitation focused primarily on retail stores and related consumer goods sectors.<sup>26</sup> It may also be, too, that in other sectors, where it was harder for storm troopers to drive customers away, the market reflected expectations of a relatively smooth transfer of ownership from the Jewish to Aryan investors or managers. While some short-term upheaval may be associated with wresting control from existing owners, investors may not have expected a major impact on

profitability. Eq. (5) reports the winsorized results, which are almost identical to those from the untruncated dependent variable. It appears that having a board member who supported the Nazis or signed petitions for Hitler produced substantial pay-offs on the stock market.

### *B. Results over time*

As a next step, we estimate the returns to being Nazi-affiliated and Jewish-owned in consecutive cross-sections. Returns are always the log difference of the RM value of shares on the 10th of each month until the 10th of the following month.



Table 4 shows that the extent of outperformance by connected firms varied over time. For the period before January 1933, there is only weak evidence that political events mattered for the cross-section of stock returns. Between mid-July and mid-August 1932, the electoral success of the NSDAP – and the increasing probability of its entry into government – seem to have raised the value of party connections, but the positive coefficient on the Nazi dummy variable is not significant. There are also no consistently significant results for Jewish-owned firms, a few exceptions not withstanding.

For 1933, the more detailed evidence in

Table 4 suggests that outperformance of connected firms between January and May 1933 was not continuous, but concentrated in two months – from mid-January to mid-March. Immediately after Hitler’s accession to power, the stock market rewarded connected firms. The outperformance amounts to 3-4 percentage points. While the Weimar Republic’s record of unstable cabinets might have left many observers wondering in January and February if the new government was going to last, few could have had such doubts by mid-March. As Robert Crozier Long, the *New York Times*’ Berlin correspondent observed:<sup>27</sup> “The German business community received the news of Hitler’s electoral victory calmly. Some business men even expressed enthusiasm, and a rather wild advance occurred on the Berlin Boerse, in which leading stocks gained 15 to 25 points within three days.” After the Reichstag elections, NSDAP and Kampffront Schwarz-Weiß-Rot had a parliamentary majority. Perhaps more importantly, the massive crackdown on the Communists after the Reichstag fire in late February and the intimidation and relentless propaganda in the run-up to the election made it abundantly clear that a new authoritarian regime had taken hold. Also, in the meeting on February 20th, Hitler and his associates had tried to reassure business leaders, distancing themselves from the social-revolutionaries in the party. Between mid-March and mid-April, little additional information seems to have arrived that would have further enthused stock market investors about Nazi-connected firms. By late May, the destruction of the labor movement in all its forms had become a reality, but the gains for connected firms are not tightly estimated. According to our estimates, the stock market rewarded connected firms with a return of approximately 9 percent for the period January to May 1933.

Jewish-owned firms underperform in January-February, but the coefficient is not tightly estimated. After the start of the nationwide boycott of Jewish stores in April – often associated with violent acts committed by the SA as well as scenes of public humiliation and physical attacks on Jews – we find declining share values. All non-Arians were banned from public office. Observers noted that, when anti-Jewish activities erupted, all stocks declined, and that Jewish department stores were particularly hard-hit.<sup>28</sup>

### *C. Returns by type of affiliation*

Connections with the Nazi party could be established in a variety of ways. It is reasonable to ask if they were all equally useful. As Table 5 shows, all types of affiliation generated a significant excess return. As one would expect as a result of smaller sample size, the significance levels are generally somewhat lower, but the results for the ‘connected’-dummy are not statistically different from the baseline results.

The results in Table 5 therefore also confirm that one potentially contentious decision is not decisive – we counted firms contributing on February 20<sup>th</sup> as connected. This could be seen as inappropriate because stock returns from January 10<sup>th</sup> to February 10<sup>th</sup> are counted as if these firms had already established a close link. As Table 5 shows, these firms did very well over the period as a whole – under OLS, they show abnormal returns of 6.4 percentage points between January and March, compared to the 3.8-5.2 percent we estimated for other forms of affiliation. Crucially, none of our conclusions depend on whether we include firms “connected” only because of February 20<sup>th</sup>. If, to err on the side of caution, we exclude firms whose only connection with the NSDAP stems

from that meeting and re-estimate the full specification (9) from Table 3, we obtain a coefficient of 0.065 (t-statistic 2.75).

## V. Robustness

### *A. Alternative estimators and sample periods*

It is well-known that stock returns do not follow a normal distribution [Campbell, Lo and MacKinlay 1997]. To avoid the possibility of a few outliers influencing our results, we use median regressions that minimize absolute deviations instead of the square of residuals [Koenker and Hallock 2001]. Table 6 reports the results of re-estimating the baseline regression including the full set of controls. Again, for the period before January 1933, Nazi-connected firms show similar returns to other firms in our sample. The importance of the dividend yield is not robust to the use of alternative estimators. Table 6 also shows results under OLS for the period January to May 1933, to examine the robustness of our findings for alternative sample periods. We find higher returns for affiliated companies. The estimated impact is at the high end of the results obtained in Table 3, with outperformance of over 8 percent over the period. The equivalent period before the Nazi rise to power (September to January) also shows no outperformance, as before.

### *B. Controlling for risk*

Are the higher returns for Nazi-connected firms simply a reward for higher risk? To examine this possibility, we calculate beta coefficients based on the firm-level returns for the period April 1932-January 1933. *Prima facie*, there is a real possibility that this

interpretation is pertinent – connected firms had a markedly higher average beta. To examine this more systematically, we add the betas to the basic regression setup as an additional explanatory variable for the log return from January to March 1933.<sup>29</sup> Table 7 shows OLS regressions (eq. 1-3) including beta coefficients. The coefficient is never large or significant, and the size and statistical importance of the Nazi dummy survives in all specifications. The same is true when we estimate with the winsorized dependent variable (eq. 4). Overall, there is little evidence that higher returns for Nazi-affiliated firms were simply a reward for greater market risks.

### *C. Extreme bounds analysis*

In all previous tables, we provided stepwise variations of the basic regression setup. There may be a real danger that researchers only report the combination of exogenous variables that yields a significant coefficient. We use a form of Leamer-style extreme bounds analysis to safeguard against this potential problem [Levine and Renelt 1992]. Using 35,960 possible combinations of regressors – including all 29 sector dummies, the log of market capitalization, the dividend yield, and the Jewish ownership dummy – we obtained a minimum coefficient for the Nazi variable of 0.0498 (t-statistic 3.01) and a maximum of 0.088 (t-statistic 4.79).<sup>30</sup> Despite using a very large number of possible combinations of regressors, we consistently find a statistically significant and economically meaningful coefficient. Sala-i-Martin [1997] makes the valid point that the entire distribution of coefficients, and not just the extreme bounds, matter. Since the stringent Levine-Renelt method raises the bar relative to the Sala-i-Martin approach, our results are a lower bound on the true stability of the effect of party affiliation.

#### *D. Alternative definitions of affiliation*

What constitutes affiliation with the Nazi party is crucial for the analysis presented in this paper. However, much of the historical literature on the topic has been devoted to detailed discussions about which businessman maintained what kind of link.<sup>31</sup> Our results are not sensitive to alternative definitions of connection with the Nazi party. Excluding the contributors during the fundraising party on February 20<sup>th</sup>, for example, does not change our results. Otto Wolff's support for the regime has been questioned by some. Similarly, Emil Georg von Stauss has sometimes been questioned, though he extended financial support to at least Göring and Arbeitsstelle Schacht and thus qualifies as connected for this paper.<sup>32</sup> We also test the inclusion of von Schröder's senior partner, J. H. von Stein, whose involvement has been questioned.

In Table 8, we exclude these figures. If we do not count Otto Wolff as connected, the coefficient on the Nazi dummy falls by 0.05 log points, and the statistical significance is reduced somewhat – yet it remains strong overall. Similarly, excluding the contributors on 20<sup>th</sup> of February reduces significance to a small extent, but does not undermine our results. Neither does von Stein's or von Stauss's exclusion. Even when we use the most stringent definition, excluding all new February 20<sup>th</sup> contributors, von Stauss, von Stein and Wolff, we find positive and highly significant (if slightly lower) returns. Also, we cannot reject the null that the coefficient under the most stringent definition of party affiliation is identical with the baseline result.

#### *E. Errors-in-variables estimation*

Despite the care we have taken in analyzing affiliations, it is possible that the key right-hand-side variable – party affiliation – is measured with an error. Some of the firms

in our sample may have made contributions that left no trace in the surviving records. Our set of connected companies may only be a subset of those that lent support to the NSDAP. If the group of firms we classify as ‘non-affiliated’ contains some firms that did contribute (and were seen to have done so by investors), we probably understate the true impact on stock prices. To deal with the issue, we use errors-in-variable estimation, using a plausible range of reliability values.<sup>33</sup> An upper bound of the ratio of noise variance to total variance is probably 0.5. We also use alternative values of 0.25 and 0.1 (Table 9).

As expected, the size and significance of the Nazi-affiliation dummy increases. For the least pessimistic reliability scores, we estimate an impact that is very similar to the results of OLS estimation. If the noise variance to total variance ratio is higher than 0.25, there are very large benefits from being connected; at 0.5, the estimator suggests an outperformance of 16 percent over the period January to March 1933. If we missed connected firms, our results would be even stronger than suggested by the results in earlier sections.

## VI. Sectoral Composition and Endogeneity

There are good reasons to think that some firms sought proximity to the NSDAP more vigorously than others – partly because they expected a greater pay-back. This could undermine the validity of our earlier analysis – either because unobserved variables are responsible for the results, or because of endogeneity issues. A simple probit regression (Table 10) of affiliation on observable firm characteristics yields some striking results:

Auto firms were more likely to back the Nazi party, and so were larger firms (by market capitalization).<sup>34</sup> In both definitions of affiliation, there is also evidence that steel

producers were more likely to seek the proximity of the NSDAP. On the other hand, chemicals producers were not significantly more likely to be affiliated with the Nazi party. Overall, we can never explain more than 15 percent of the variation in party connections with size and sectoral variables. This suggests that there is a large, unexplained component left which influenced affiliations. We think of this as reflecting the accidents of personal contacts, the imperfect state of archival documentation, and the vagaries of political preferences and distastes.

#### *A. Controlling for Sectors*

Are the strikingly high returns simply a reflection of the overrepresentation of certain industrial groups, which could expect a sizeable pay-back in the future from closer ties with the Nazi party? As a first step, we include dummy variables for a number of sectors as additional controls (Table 11). In eq. 2, we focus on the sectors most likely to have outperformed.

Independent of the set of controls used, the significance of our Nazi dummy variable is never affected. We find positive returns for oil companies, munitions manufacturers, and steel producers. Gains for car manufacturers and machinery tool producers were more muted.<sup>35</sup> In both specifications, the returns to party affiliation are not much smaller than in table 3. The benefits of association, as perceived by the stock market, are not driven by sector effects.

#### *B. Endogeneity – Propensity Matching Results*

So far, we have implicitly assumed that membership in the “connected” group was essentially random. However, there are a number of observable characteristics that



correlate with being connected with the Nazi party. Even if they do not explain a large share of the total variation, the Nazi dummy variable may be partly endogenous, and inference will be invalid.

One standard way of dealing with the endogeneity problem is to perform matching using a set of controls that influence assignment to the “treated” or “untreated” group. In this way, we compare the share price performance of firms with similar observable characteristics, based on a propensity score.<sup>36</sup> Instead of dividing the sample into an arbitrary number of subgroups based on market capitalization or dividend yield, and comparing the return differences between affiliated and unaffiliated groups, we can use n-dimensional matching to provide direct controls for the characteristics of firms. The same control variables used in Table 3, plus a full set of sector dummies, are employed to calculate propensity scores. Only the returns of the most similar firms are then compared to each other. As Dehejia and Wahba [1999] argue, propensity-score matching can overcome endogeneity problems by focusing comparisons on that subgroup of observations that is strictly comparable. Their results suggest a high success rate in replicating results from experimental studies. We use two alternative methods for estimating differences between the matched groups – nearest neighbor matching (with the 3 most similar firms being compared) or a kernel approach using a continuous weighting function.

For the period January-March 1933, the strongly positive effect of Nazi-affiliation is confirmed – the matching estimator results suggest outperformance of 6-7 percent, significant at the 95 percent level of confidence (Table 12). The two-month period prior to the Nazis’ coming to power shows mild underperformance, but the result is not

significantly different from zero. Overall, the impact of relaxing the linearity assumption is small – we broadly find the same results as under OLS.

## VII. Conclusions

Undermining German democracy by backing the Nazi party promised handsome rewards for the firms involved – at least in the eyes of stock market speculators. We find strong evidence that the stock market bid up connected firms beyond what can be explained by size, profitability, or sectoral origin. We cannot say if business profits actually increased as a result of unstinting help to the Nazi party. As uncertainty about the regime's stability was resolved between January 30<sup>th</sup> and late March, the stock prices of connected firms rallied substantially, outperforming the rest of the market. This result is not driven by outliers or the sectoral composition of donor groups. Most of the excess returns accumulated by March 10<sup>th</sup>. Just as in 1990s Malaysia and Indonesia, the stock market realized the value of political connections when it saw them in Nazi Germany. In the aggregate, the impact was large. The Berlin stock market capitalization rose by RM 243 mio. between mid-January and mid-March 1933. Connected firms were responsible for 204 mio; the remaining 39 mio came from unconnected firms. Shares prices in Germany may not have been rising more than in other countries after January 30<sup>th</sup>, 1933, but a large part of the increase that we observe reflects the value of political connections with the new party in power – and not general improvements in business conditions.

Our results also add an important dimension to the evolving literature on what determines the origins of stable institutions.<sup>37</sup> In the case of Weimar Germany at least, there were substantial returns to be had from backing a radical party that was known to

favor authoritarian rule and rearmament. A firm that contributed to the Nazi Party's funds, or supported it in some other way, saw its stock price rise by 5 to 7 percent faster between January and March than comparable firms. With a median stock market value of 61 mio. RM (as of December 1932) of connected firms, this translated into gains of approximately 3 to 4 mio RM. Contributions to the party were, by comparison, small. Even IG Farben, with a stock market capitalization of 924 mio. RM (and a rise in its stock market value of 127 mio. RM between January and March) appears to have only contributed 400,000 RM at the infamous February 20<sup>th</sup> meeting that provided election funding for the NSDAP – the biggest contribution by any firm. Most firms provided only a fraction of that.

These high rates of return would probably not have materialized if the Nazi party had not destroyed the liberal Weimar constitution. Comparison with the results of Faccio [2006] suggest that in her sample of 47 countries from around the globe, only those with above-average corruption showed similarly high returns. At the same time, associations with the NSDAP were formed voluntarily, not through family links. Though some businessmen felt that the donations were large, their value was small compared to the rise in stock market value of connected firms. Interestingly, even recently-formed affiliations like those resulting from the fundraising party in Berlin on February 20<sup>th</sup>, 1933, appear to have boosted firms' fortunes on the stock market. Our results are consistent with prediction that follows from the recent literature on the value of political connections around the globe, namely that under certain conditions, businesses may prefer centralized dictatorial systems that amplify the benefits of party affiliation.<sup>38</sup> Returns were not arbitrated away by many other firms entering the fray. This suggests Hitler's rise to

power came as a genuine surprise to many, that an ideological distaste for his party kept numerous businessmen from contributing, or that the Nazis built self-consciously on big business and existing business groups.

To understand the value of political connections in Germany, we examine the directorships of listed firms. Interlocking directorates were key for the country's industry's power structure – a phenomenon known as “Germany AG”. We use this basic insight to track the influence of contributors to the Nazi party. Amongst the party's supporters we count only those that contributed funds, or offered direct support for the ‘movement’, or for appointing Hitler chancellor. Tracing them through the contemporary handbooks on German firms, we examined which business leaders with ties to the NSDAP served on supervisory boards. Despite the restrictive definitions, we find that 106 firms in our sample of 789 were connected in one way or another. Since these firms were, on average, larger and more highly capitalized than unaffiliated firms, they accounted for almost three quarters of the Berlin stock market's capitalization. When the *New York Times* reported in early June that “a large part of the press cordially endorses the [Nazi economic] program; the Stock Exchange is buoyant and industrial and financial circles apparently are willing to contribute their share to its success,” it was not exaggerating.<sup>39</sup> This calls into question Turner's conclusion that links between the Nazis and big business were unimportant both quantitatively and in terms of the strength of the association formed.

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## References

- Abadie, Alberto, David Drukker, Jane Leber Herr and Guido Imbens. "Implementing Matching Estimators for Average Treatment Effects." *UC Berkeley Working Paper* (2002).
- Abraham, David. *The Collapse of the Weimar Republic*; 2<sup>nd</sup> edition. (New York, Holmes & Meier, 1986)
- Acemoglu, Daron, Simon Johnson and James Robinson. "The Colonial Origins of Comparative Development: An Empirical Investigation", *American Economic Review* (2001) 91 (5): 1369-1401.
- Ansola-behere, Stephen, John de Figueiredo and James Snyder. "Why is There So Little Money in U.S. Politics?", *Journal of Economic Perspectives* (2003) 17(1): 105-130.
- Ansola-behere, Stephen and James Snyder. "Money and Institutional Power." *Texas Law Review* (1999) 77: 1673-1704.
- Baker, Malcolm, Jeremy Stein and Jeffrey Wurgler. "When Does the Market Matter? Stock Prices and the Investment of Equity-Dependent Firms." *Quarterly Journal of Economics* (2003) 118 (3): 969-1005.
- Barkai, Avraham. *From Boycott to Annihilation* (London: University Press of New England for Brandeis University Press, 1989).
- Berghahn, Volker, "Writing the History of Business in the Third Reich: Past Achievements and Future Directions," in Francis Nicosia and Jonathan Huener, *Business and Industry in Nazi Germany* (New York: Berghahn Books, 2004).
- Bessel, Richard. *Nazism and War* (New York, Modern Library, 2004).

Brüning, Heinrich. *Memoiren 1918-1934* (Stuttgart: Deutsche Verlags-Anstalt, 1970).

Buer, Gerhardt. "Die Beteiligung der Juden an der deutschen Eisen und

Metallwirtschaft," *Der Morgen* (1927) 3 (1), 86-98.

Campbell, John Y., Andrew Lo and A. Graig MacKinlay. *The Econometrics of Financial Markets*. Princeton, Princeton University Press, 1997).

Comite des delegations juives. *Das Schwarzbuch Tatsachen und Dokumente* (Paris, Editions du Rond Point, 1934.

Conze, Eckart. "Titane der modernen Wirtschaft : Otto Wolff (1881-1940)," in Peter Danylow and Ulrich Soénus, *Otto Wolff Ein Unternehmer zwischen Wirtschaft und Politik* (Munich: Siedler, 2005).

Dodd, William Edward and Martha Dodd. *Ambassador Dodd's Diary, 1933-1938* (New York: Harcourt Brace, 1941).

Dehejia , Rajeev and Wahba Sadek, "Causal Effects in Nonexperimental Studies: Reevaluating the Evaluation of Training Programs," *Journal of the American Statistical Association* (1999) Vol. 94.

Faccio, Mara. "Politically Connected Firms," *American Economic Review* (2006) 96 (1), 369-86.

Faccio, Mara, Ronald Masulis and John McConnell. "Political Connections and Government Bailouts" *Journal of Finance* (2005), forthcoming.

Feldman, Gerald. "Financial Institutions in Nazi Germany: Reluctant Or Willing Collaborators," in Francis Nocosia and Jonathan Huener, *Business and Industry in Nazi Germany* (New York: Berghahn Books, 2004).

- Ferguson, Thomas. "Holy Owned Subsidiary: Globalization, Religion and Politics in the 2004 Election," in William Crotty, ed. *A Defining Election: The Presidential Race of 2004* (Armonk, N.Y.: M.E. Sharpe, 2005). Longer internet version: <http://utip.gov.utexas.edu/abstract.html#UTIP32>
- Fisman, Raymond. "Estimating the Value of Political Connections." *American Economic Review* (2001) 91(4): 1095-1102.
- Fohlin, Caroline. "The Rise of Interlocking Directorates in Imperial Germany." *Economic History Review* (1999) 52(2): 307-33.
- Genschel, Helmut. *Die Verdrängung der Juden aus der Wirtschaft in Dritten Reich* (Göttingen: Musterschmidt, 1966).
- Gerschenkron, Alexander. *Economic Backwardness in Historical Perspective* (Cambridge: Harvard University Press, 1962).
- Grier, Kevin and Michael Munger, "Committee Assignments, Constituent Preferences, and Campaign Contributions", *Economic Inquiry* (1991) 29: 349-361.
- Hardin, J. and R. Carroll. "Measurement Error, Glms, and Notational Conventions." *Stata Journal* (2003) 3(4).
- Hayes, Peter. *Industry and Ideology: I.G. Farben in the Nazi Era* (New York: Cambridge University, 1987).
- Heiden, Konrad. *Der Fuehrer : Hitler's Rise to Power*. Boston: Houghton Mifflin, 1944.
- Holtfrerich, Carl-Ludwig. *Finanzplatz Frankfurt. Von der Mittelalterlichen Messestadt zum Europäischen Bankenzentrum*. (Munich: C.H. Beck, 1999).

- James, Harold. "Banks and Business Politics in Nazi Germany," in Francis Nicosia and Jonathan Huener, *Business and Industry in Nazi Germany* (New York: Berghahn Books, 2004).
- Johnson, Simon and Todd Mitton. "Cronyism and Capital Controls: Evidence from Malaysia." *Journal of Financial Economics* (2003) 67(2): 351-82.
- Kaznelson, Siegmund. *Juden im deutschen Kulturbereich* (Berlin: Jüdischer Verlag, 1962).
- Koenker, Roger and Kevin Hallock. "Quantile Regression." *Journal of Economic Perspectives* (2001) 15(4): 143-56.
- Landsberg, Ernst. "Die Juden in der Textilindustrie," *Der Morgen* (1927) 3 (1), 99-113.
- Landsberg, Ernst. "Die Beteiligung der Juden an deutschen Montanunternehmungen," *Der Morgen* (1927) 3 (2), 201-215.
- Langer, Peter. "Paul Reusch und der 'Machtergreifung,'" *Mitteilungsblatt des Instituts für Soziale Bewegungen* (2003) Nr. 28, 157-202.
- Leuven, Edward and Barbara Sianesi. "Psmatch2. Stata Module to Perform Full Mahalanobis and Propensity Score Matching," *Statistical Software Components* S432001, Boston College Department of Economics, 2004.
- Levine, Ross and David Renelt. "A Sensitivity Analysis of Cross-Country Growth Regressions." *American Economic Review* (1992) 82(4): 942-63.
- Manvell, Roger and Heinrich Fraenkel (1974). *The Hundred Days to Hitler* (New York: St. Martin's Press, 1974).
- Mollin, Gerhard. *Montankonzerne und "Drittes Reich"* (Göttingen: Vandenhoeck & Ruprecht, 1988).



- Mommsen, Hans, *Aufstieg und Untergang der Republik von Weimar*. (2<sup>nd</sup> Auflage; Munich: Ullstein Heyne, 2004).
- Mosse, Werner Eugen. *The German-Jewish Economic Elite, 1820-1935: A Socio-Cultural Profile*. (Oxford: Oxford University Press, 1989).
- Neebe, Reinhard. *Grossindustrie, Staat und NSDAP 1930-33* (Göttingen: Vandenhoeck & Ruprecht, 1981).
- Passow, R. "Die Bedeutung des Aufsichtsrates für die Aktiengesellschaft." *Thünen-Archiv* (2006) 1(5).
- Priester, Hans. "Die Teilnahme der deutschen Juden am Geldmarkt," *Der Morgen* (1927) 3(3), 323-330.
- Sala-i-Martin, Xavier. "I Just Ran Two Million Regressions." *American Economic Review* (1997) 87(2): 178-83.
- Schwerin von Krosigk, Lutz Graf. *Staatsbankrott* (Göttingen: Musterschmidt, 1974).
- Schwerin von Krosigk, Lutz Graf. *Memoiren* (Stuttgart: Sewald, 1977).
- Snyder, James. "Campaign Contributions as Investments: The House of Representatives, 1980-1986", *Journal of Political Economy* (1990) 98(6):1195-1227.
- Stegmann, Dirk. "Zum Verhältnis von Grossindustrie und Nationalsozialismus 1930-1933." *Archiv für Sozialgeschichte* (1973)13: 399-482.
- Stegmann, Dirk. "Antiquierte Personalisierung oder Sozialökonomische Faschismus-Analyse." *Archiv für Sozialgeschichte* (1977) 17: 275-296.
- Thyssen, Fritz. *I Paid Hitler* (New York: Farrar & Rinehart, 1941).
- Tooze, Adam. *Wages of Destruction* (London: Allen Lane, 2006).

Toury, Jacob. *Jüdische Textilunternehmer in Baden-Württemberg 1683-1938* (Tübingen: J.C.B. Mohr, 1984)

Tullock, Gordon, "The Purchase of Politicians", *Western Economic Journal* (1972) 10: 354-355.

Turner, Henry Ashby. *German Big Business and the Rise of Hitler* (New York, Oxford University Press, 1985).

\_\_\_\_. *Hitler's Thirty Days to Power : January 1933*. (Reading, Mass.; Addison-Wesley, 1996).

Winkler, Heinrich August. *Weimar, 1918-1933 : Die Geschichte der Ersten Deutschen Demokratie*. (Munich: Beck, 1993).

## Tables

Table 1: Chronology of Key Events

1932	May 30	Chancellor Brüning steps down
	July 31	National elections (NSDAP wins 230 seats)
	August 13	Hitler and von Papen visit President Hindenburg; Hitler declines offer of Vice-Chancellorship
	November 6	National elections (NSDAP seats decline from 230 to 196)
	December 2	General von Schleicher appointed Chancellor
1933	January 4	Meeting of von Papen and Hitler in the house of von Schröder in Cologne
	January 30	Hitler appointed Chancellor
	February 27	Reichstag fire
	March 5	National elections (NSDAP obtain 288 of 648 seats)
	March 24	Enabling law (legislation can be enacted without constitutional constraints)
	April 1	Nationwide boycott of Jewish-owned stores starts
	May 2	Unions dissolved

Table 2: Descriptive Statistics

		connected	unconnected
Mean stock market capitalization, December 1932, in Mio. RM		61.0	6.8
Weight by capitalization in total		0.73	0.27
Mean dividend yield		0.038	0.029
Proportion of firms with zero dividend		0.615	0.507
Mean log return	November 32-January 33	0.12	0.11
	January 33 - March 33	0.07	0.01
N		106 (83)	683 (364)

Note: Sample size for firms with capitalization figures in brackets

Table 3: OLS Regressions (dependent variable: log returns November 32 – January 33; January 33- March 33)

Regression	1	2	3	4	5
10.11.1932-10.1.1933					
Nazi	0.025 [1.1]	0.02 [0.88]	0.033 [1.6]	0.033 [1.6]	0.02 [0.9]
MarketCap		9.8e-11 [0.96]	7.8e-11 [0.8]	0.014** [2.45]	0.013** [2.2]
DividendYield			-0.02 [0.07]	-0.19 [0.7]	-0.18 [0.7]
Jewish-owned				-0.005 [0.2]	-0.0047 [0.1]
Constant	0.10 [9.85]	0.11 [9.4]	0.11 [6.4]	-0.08 [1.0]	-0.08 [1.0]
Adj. R <sup>2</sup>	0.002	0.001	0.02	0.043	0.0455
N	436	241	211	211	211
Regression	6	7	8	9	10
10.1.1933-10.3.1933					
Nazi	0.064*** [4.3]	0.063*** [3.3]	0.079*** [3.7]	0.079*** [3.7]	0.077*** [3.88]
MarketCap		-4.9e-11 [0.6]	-6.7e-11 [0.8]	-6.3e-11 [0.8]	-5.8e-11 [0.7]
DividendYield			0.013 [0.6]	0.123 [0.6]	0.15 [0.7]
Jewish-owned				-0.018 [0.7]	-0.02 [0.64]
Constant	0.009 [1.18]	0.004 [0.8]	0.02 [1.3]	0.019 [1.4]	0.02 [1.3]
Adj. R <sup>2</sup>	0.03	0.045	0.07	0.07	0.068
N	447	247	218	218	218

Note: t-statistics in parentheses. Standard errors are based on Huber-White heteroscedasticity-consistent estimates.

\*, \*\*, \*\*\* indicate significance at the 90, 95, and 99% level of confidence. The dependent variable in eq. 5 and 10 is winsorized with a cutoff of 0.99 and 0.01.

Table 4: Coefficients on Nazi dummy and Jewish-owned dummy, month-by-month.

1932	NS-affiliated	Jewish-owned	1933	NS-affiliated	Jewish-owned
May-June	0.0045 [0.2]	0.01 [0.3]	Jan-Feb	0.044*** [2.6]	-0.016 [0.96]
June-July	-0.015 [0.7]	0.025 [1.1]	Feb-Mar	0.026* [1.65]	0.01 [0.4]
July-Aug	0.08** [2.1]	0.02 [0.3]	Mar-Apr	0.0006 [0.04]	-0.03** [0.8]
Aug-Sept	-0.004 [0.14]	0.008 [0.2]	Apr-May	0.02 [0.96]	0.09 [0.4]
Sept-Oct	-0.056*** [4.2]	-0.015 [0.9]			
Oct-Nov	0.0087 [0.81]	0.005 [0.3]			
Nov-Dec	0.015 [0.9]	-0.065 [0.26]			
Dec-Jan	0.012 [0.5]	0.04 [1.3]			

Note: \*, \*\*, \*\*\* indicate significance at the 90, 95 and 99% level, respectively. t-statistics in parentheses. Standard errors are based on Huber-White heteroscedasticity-consistent estimates. Estimation based on the specification in (9) in table 3, including a full set of controls.

Table 5: Returns by type of affiliation

	Coefficient [t-statistic]	Number of firms with affiliation
Hindenburg Petition	0.044*** [2.4]	66
Arbeitsstelle Schacht	0.038* [1.82]	43
Keppler Kreis	0.052** [2.8]	57
Contributors February 20 <sup>th</sup>	0.064*** [3.3]	23

Note: \*, \*\*, \*\*\* indicate significance at the 90, 95 and 99% level, respectively. t-statistics in parentheses. Robust standard errors are based on Huber-White heteroscedasticity-consistent estimates.

Table 6: Baseline regression – alternative estimators and sample periods tests

Regression	1	2	3	4
	11/32-1/33	1/33-3/33	9/32-1/33	1/33-5/33
	Median	Median	OLS	OLS
Nazi	0.027 [1.0]	0.048** [1.9]	-0.017 [0.7]	0.082*** [2.62]
MarketCap	-1.8e-11 [0.2]	-1.4e-10 [1.4]	-3e-11 [0.5]	-1-e10 [2.7]
DividendYield	-0.06 [0.2]	0.35* [1.88]	0.43 [1.3]	-1.0*** [2.7]
Jewish-owned	-0.04 [1.2]	-0.002 [0.07]	-0.045 [1.2]	-0.03 [0.7]
Constant	0.1 [6.6]	0.02 [1.1]	0.12 [5.3]	0.16*** [8.1]
Pseudo-R <sup>2</sup>	0.01	0.035	0.016	0.08
N	211	218	214	220

Note: \*, \*\*, \*\*\* indicate significance at the 90, 95 and 99% level, respectively. t-statistics in parentheses. Robust standard errors are based on Huber-White heteroscedasticity-consistent estimates

Table 7: Regressions controlling for beta (dependent variable: log returns January 33- March 33)

Regression	1	2	3	4
Nazi	0.067** [4.1]	0.057** [2.6]	0.083*** [3.7]	0.08*** [3.9]
Beta	-0.001 [1.4]	-0.002 [1.5]	-0.0018 [1.3]	-0.002 [1.3]
MarketCap		-5e-11 [0.6]	6.4e-11 [0.8]	-6e-11 [0.7]
DividendYield			0.05 [0.23]	0.08 [0.4]
Jewish-owned			-0.02 [0.6]	-0.013 [0.5]
Constant	0.0158 [1.8]	0.03 [3.2]	0.03 [1.96]	0.025 [1.9]
Adj. R <sup>2</sup>	0.05	0.06	0.08	0.12
N	381	238	211	211

Note: \*, \*\*, \*\*\* indicate significance at the 90, 95 and 99% level, respectively. t-statistics in parentheses. Robust standard errors are based on Huber-White heteroscedasticity-consistent estimates. The dependent variable in eq. 4 is winsorized with a cutoff of 0.99 and 0.01.

Table 8: Alternative definitions of connection variable, OLS

Baseline specification	0.065*** [4.3]
Excluding Wolff	0.0598** [3.8]
Excluding Feb 20 <sup>th</sup> contributors	0.062*** [3.92]
Excluding von Stauss	0.063*** [4.1]
Excluding Wolff, von Stein	0.053** [3.35]
Excluding Wolff, von Stein, Feb 20 <sup>th</sup>	0.048** [2.96]
Excluding Wolff, von Stein, Feb 20 <sup>th</sup> , von Stauss	0.044** [2.6]

Note: \*, \*\*, \*\*\* indicate significance at the 90, 95 and 99% level, respectively. t-statistics in parentheses. Robust standard errors are based on Huber-White heteroscedasticity-consistent estimates

Table 9: Errors-in-variable estimation

Regression	1	2	3	4
		1/33- 3/33		
Reliability score		0.9	0.75	0.5
Noise-to-total variance		0.1	0.25	0.5
Estimator	OLS	EIV	EIV	EIV
Nazi	0.079*** [3.7]	0.089*** [3.8]	0.109*** [3.9]	0.17*** [3.99]
MarketCap	-6.3e-11 [0.8]	-7.3e-11 [0.9]	-9.4e-11 [1.1]	-1.6e-10 [1.8]
DividendYield	0.123 [0.6]	0.12 [0.5]	0.12 [0.5]	0.12 [0.5]
Jewish-owned	-0.018 [0.7]	-0.019 [0.7]	-0.109 [0.7]	-0.022 [0.8]
Constant	0.019 [1.4]	0.02 [1.4]	0.013 [1.1]	0.0003 [0.014]
Adj. R <sup>2</sup>	0.07	0.075	0.09	0.14
N	218	218	218	218

Note: \*, \*\*, \*\*\* indicate significance at the 90, 95 and 99% level, respectively. Standard errors under OLS are White heteroscedasticity-corrected. EIV refers to errors-in-variable estimation.

Table 10: Probit regressions (dependent variable: Nazi dummy)

Regression	1	2
Estimator	Probit	Probit
Connection variable	Baseline	Most narrow (without Feb 20 <sup>th</sup> , von Stauss, von Stein, Wolff)
MarketCap	1.54e-8** [2.7]	2.4e-9** [2.6]
DividendYield	1.6 [0.6]	1.4 [0.5]
Chemicals	0.4 [1.1]	-0.21 [0.48]
Steel	1.2*** [3.6]	0.83 [2.5]
Cars	1.5 [2.0]	+
Constant	-1.2*** [7.5]	-1.2*** [7.8]
Pseudo - R <sup>2</sup>	0.15	0.08
N	221	218

Note: \*, \*\*, \*\*\* indicate significance at the 90, 95 and 99% level, respectively.

+ dropped because of lack of variation



Table 11: Robustness tests – sectoral composition (returns 1/33-3/33)

Regression Estimator	1 OLS	2 OLS
Nazi	0.063*** [2.97]	0.06*** [3.1]
MarketCap	-4.9e-11 [0.7]	5e-11 [0.8]
DividendYield	0.39* [1.7]	0.25 [1.1]
Jewish-owned	-0.004 [0.15]	-0.03 [1.2]
Chemicals		0.04* [1.99]
Oil		0.12*** [4.9]
Steel		0.06* [1.7]
Munition		0.31*** [12.5]
Machinery		0.022 [0.5]
Cars		0.096 [0.7]
Full set of sector dummies	Y	N
Constant	0.04 [2.0]	0.009 [0.5]
Adj. – R <sup>2</sup>	0.24	0.12
N	218	218

Note: \*, \*\*, \*\*\* indicate significance at the 90, 95 and 99% level, respectively.

Table 12: Matching estimator results: Stock returns

	Treated	Controls	Difference
11/32-1/33			
Nearest neighbor (3)	0.147	0.159	-0.012 [-0.12, 0.05]
Kernel	0.145	0.148	-0.003 [-0.096, 0.06]
1/33-3/33			
Nearest neighbor (3)	0.09	0.0294	0.0606 [0.036, 0.12]
Kernel	0.092	0.024	0.068 [0.029, 0.122]

Note: “Treated” refers to firms predicted to be Nazi-affiliated, “controls” are firms with similar characteristics based on the propensity scores derived from Probit estimates. The 95% confidence interval, based on percentiles of the difference (in square brackets), was derived from bootstrap estimation with 50 repetitions.

## Figures

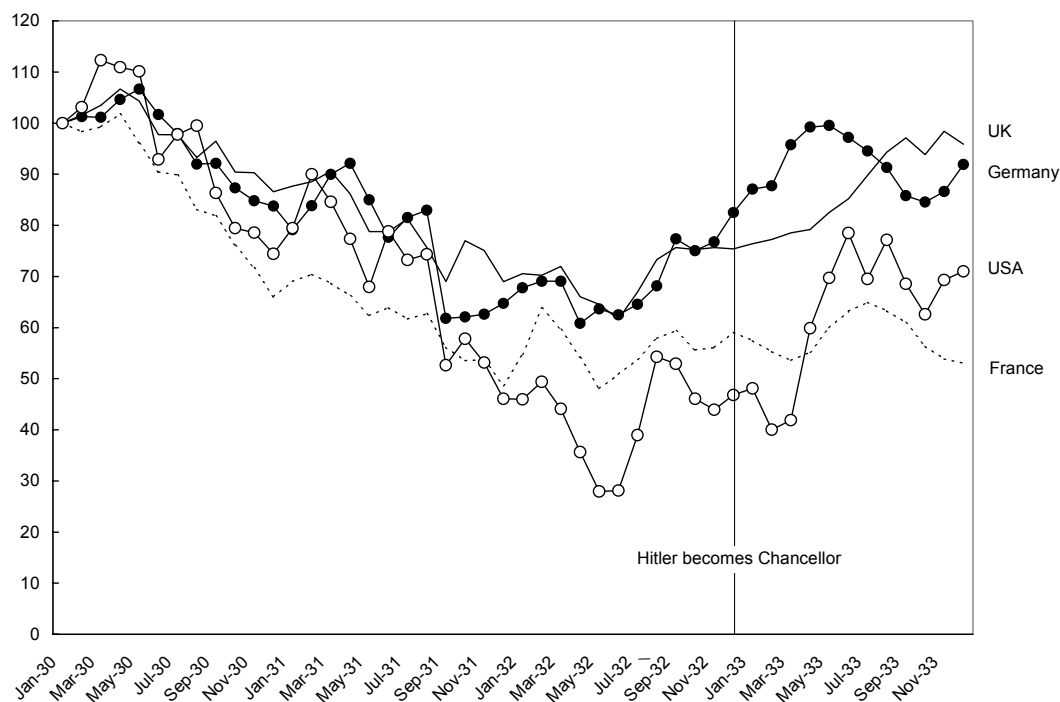


Figure 1: Stock market indices, January 1930-December 1933, UK, Germany, USA, and France

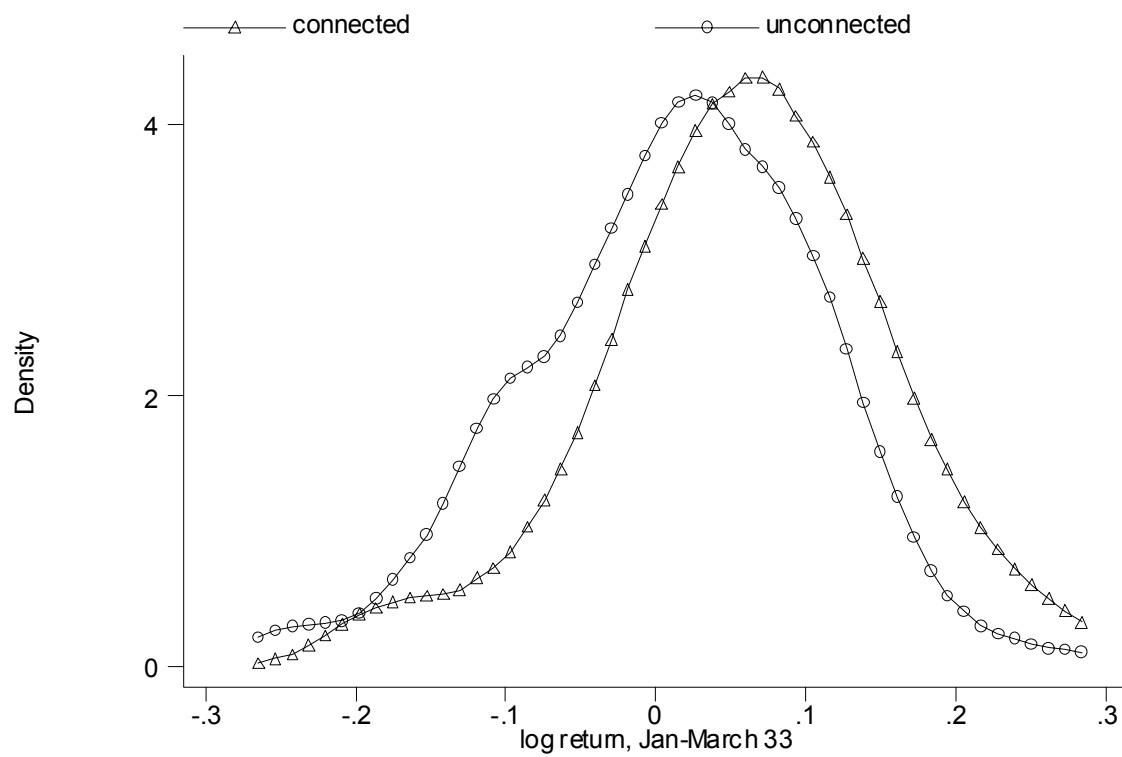


Figure 2: Distribution of log returns, January-March 1933, connected and unconnected firms

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<sup>1</sup> Heiden [1941]; testimony from senior Weimar officials who had fled the country, prominent foreign diplomats, and reports from foreign journalists only strengthened that impression. See, e.g., Brüning [1970] or Dodd and Dodd [1941].

<sup>2</sup> Turner [1985] is the classic treatment. Studies by Hayes [1987] and Mollin [1988] provided influential early support, as has subsequent work by Feldman [2004] and James [2004].

<sup>3</sup> Criticisms of earlier essays by Turner are Stegmann [1977] and [1973]; of the book, Abraham [1986] and Conze [2005]. For the consensus, see e.g., Berghahn [2004] or Feldman [2004].

<sup>4</sup> For example, Ansolabehere et al.[2003] argue that some \$200,000 in contributions by the sugar industry produced a windfall of \$1.1 billion per year for the industry; they also argue that US political contributions have been flat in real terms throughout the twentieth century. Cf. the internet version of Ferguson [2005] for a sceptical assessment.

<sup>5</sup> Turner [1996].

<sup>6</sup> The party had a long history of extra-legal violence against its enemies; the degree of central coordination was new. Cf. Bessel [2004].

<sup>7</sup> *New York Times* Feb.1, 1933, p. 29.

<sup>8</sup> News reports from the Berlin bourse often refer to positive reactions to Nazi policies (such as large increases in stock prices for automobile manufacturers after a speech by Hitler at the automobile show in February 1933), but also describe unease at

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the prospect of fresh elections and possible deadlock in the new government. Cf. *New York Times*, Feb. 12, 1933, p. 47 and Feb. 13, p. C23.

<sup>9</sup> Fohlin [1999]; Holtfrerich [1999].

<sup>10</sup> The *Handbuch* came out in several volumes, on a rolling basis throughout the year. In a few cases we also consulted other business reference volumes such as *Salings*.

<sup>11</sup> We deliberately exclude contributions to Georg Strasser and his group of social radicals.

<sup>12</sup> The fact of the meeting and the identity of most of the participants are not in dispute, but many details have been questioned. What is clear is that a group of businessmen, evidently selected because they were seen as likely contributors, was asked to provide substantial financing at a critical juncture. Cf. Turner [1985]; Stegmann [1973] and [1977].

<sup>13</sup> Manvell and Fraenkel [1974, 74-5].

<sup>14</sup> See the discussion in Turner [1985] and Stegmann [1973] and [1977]. Again, we use only the undisputed signers.

<sup>15</sup> In contrast to the “original supporters,” who had overlapping ties to Hitler himself or other senior Nazis such as Göring, the Feb. 20 conclave had an obvious corporate character. We therefore treat the firms rather than the individuals as the beneficiaries and do not attempt to link them to other firms.

<sup>16</sup> Cf. Turner [1985] and Stegmann [1973] and [1977]. We also include J. H. von Stein, von Schroeder’s senior partner, since it is implausible that von Schroeder’s stance did not redound to bank’s credit. We examine the robustness of our results with respect to this choice.

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<sup>17</sup> For Reusch, besides Turner, see Langer [2004]. On Silverberg, compare Turner [1985] with Mommsen [2004] or Neebe [1981].

<sup>18</sup> E.g., Turner [1985].

<sup>19</sup> Gerschenkron [1962]. The banks' power is examined more closely by Fohlin [1999].

<sup>20</sup> Newspaper coverage of some of these individuals was extensive; such acts as the attempt to recruit signatures on the petition to Hindenburg certainly identified others to wider circles of the business community.

<sup>21</sup> It could be argued that some positions on the Aufsichtsrat (chair, vice-chair) were potentially much more important than ordinary membership. When we distinguished primary from secondary affiliations (chair and vice-chair vs. ordinary members), there were no statistically significant differences.

<sup>22</sup> We also checked the results if we substitute mid-December as a starting date; they are unchanged.

<sup>23</sup> Turner [1996].

<sup>24</sup> For the method, cf. Baker, Stein and Wurgler [2003].

<sup>25</sup> If we pool the data in Table 3, and interact the connection variable with a dummy equal to 1 for the period after January (and zero before), we obtain a coefficient of 0.061 on the interaction term [t-statistic 2.03]. Both the connection variable itself and the "in power" dummy are insignificant.

<sup>26</sup> The largest firms are well covered by Mosse [1989]. For the smaller firms, we relied extensively on contemporaneous studies, since earlier works by Genschel [1966], Barkai [1989], and the recent wave of work on "Aryanization" concentrate on firms that

are not in our sample. We drew especially from Kaznelson [1962]; the publication of which was interrupted by the Nazi takeover and thus only appeared years later. A 1927 series of articles in the Jewish periodical *Der Morgen* were also very helpful, though we cross checked its discussions against the 1932 *Handbuch der deutschen Aktiengesellschaften*. See Landsberg [1927a] and [1927b]; Priester [1927]; and Buer [1927]; also Toury [1984]. For evidence that attacks were concentrated on retail and consumer goods sectors, see.e.g., Comité des délégations juives [1934]. Cf. also Tooze [2006].

<sup>27</sup> *New York Times*, March 13, p. 24. Another report from the same day reports on “Week’s Violent Rise in Stocks at Berlin”, and emphasizes the high trading volume (p. 24). By March 27, the *New York Times* reported that the three-week-long stock market boom was coming to an end due to profit-taking and growing dissatisfaction with lack of progress in terms of economic policy. *New York Times*, March 27, 1933, p. 23.

<sup>28</sup> *New York Times*, April 3, 1933, p. 23.

<sup>29</sup> Note that, since we use observations from the 10<sup>th</sup> of the month, the January values are still unaffected by the *Machtergreifung*.

<sup>30</sup> We use the Impavido do-file for STATA, using the maximum of 4 additional regressors (in addition to the Nazi dummy).

<sup>31</sup> Cf. Taylor [1968].

<sup>32</sup> For his aid to Göring, Mommsen [2004].

<sup>33</sup> Hardin and Carroll [2003].

<sup>34</sup> We do not use the full set of sector controls as below since some of them – due to small sample size – predict success or failure perfectly.

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<sup>35</sup> The relatively small coefficient on the steel dummy, and the insignificant result for machinery may partly reflect the sectoral composition of firms listed in Berlin. Many firms in these sectors were listed in Düsseldorf, Stuttgart, Frankfurt, Munich, Hannover, Bremen, Hamburg, Leipzig or on one of the (even smaller) exchanges in Germany.

<sup>36</sup> Abadie, Drukker, Leber Herr and Imbens [2002]. We use the matching estimator implemented by Leuven and Sianesi [2003]. The propensity scores come from Probit estimation.

<sup>37</sup> Acemoglu, Johnson and Robinson [2001].

<sup>38</sup> This conclusion is implicit in the findings of Faccio [2005].

<sup>39</sup> *New York Times*, June 4, 1933, p. 28.